Ham-Ant Digest   Thu, 17 Feb 94   Volume 94 : Issue   36

Today's Topics:
                     6 Meter Big Wheel Ant?
                   Antenna size vs frequecy?
                Bug Fix for MINNINEC from Feb. 94 QST
            Difference between Cushcraft A147-20T & A144-20T
                   Increasing antenna sensativity?
                            mininec3
                 Radiation efficiency questions ...
                       rotator ??? (2 msgs)
                         Sterba Curtain
                         Torroid Cores

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 14 Feb 1994 16:47:49 GMT
From: swrinde!cs.utexas.edu!sdd.hp.com!col.hp.com!srgenprp!news.dtc.hp.com!
hpscit.sc.hp.com!rkarlqu@network.ucsd.edu
Subject: 6 Meter Big Wheel Ant?
To: ham-ant@ucsd.edu

In article <henrysCL7yMn.H1x@netcom.com>,
Henry B. Smith <henrys@netcom.com> wrote:
>Has anybody ever seen the plans for a 6 Meter Big Wheel Antenna?
>
>If so, please pass along the reference.
>
>Thanks,

>
>Smitty, NA5K

The Big Wheel was described in the ARRL VHF Manual a number
of years ago. I have an old copy (circa 1965) that has this
antenna and also the old halo mobile antennas in it. They
quit publishing omni-directional horizontally polarized antennas
when hams switched from AM-horizontal-simplex-mobile to
FM-vertical-repeater-mobile in the early 70's.

It's basically 3 loops a full wavelength long built like a
3 leaf clover. Much better than a halo, according to the book.
I think you drive the loops in parallel, but don't quote me,
I'm working from memory here.

Rick Karlquist N6RK
rkarlqu@scd.hp.com

Date: Mon, 14 Feb 1994 15:25:04 GMT
From: swrinde!cs.utexas.edu!howland.reston.ans.net!europa.eng.gtefsd.com!emory!
news-feed-1.peachnet.edu!news-feed-2.peachnet.edu!concert!inxs.concert.net!taco!
dmndcentris.mte.ncsu.edu!sdtrent@network.
Subject: Antenna size vs frequecy?
To: ham-ant@ucsd.edu

Hello,

I read years ago that the optimum length of an antenna is 1/2 wavelength
of the frequency being received, this article was talking about
commercial FM.   Is this true (no equations needed)?

Also, would this apply to a dish antenna? What size microwave (900 MHz)
should be used?

Thanks for your help,
-shane

Date: 16 Feb 1994 17:18:01 GMT
From: koriel!male.EBay.Sun.COM!uranium!raymonda@ames.arpa
Subject: Bug Fix for MINNINEC from Feb. 94 QST
To: ham-ant@ucsd.edu

The following letter was published in the
Technical Correspondence column of the February

1994 issue of QST magazine (page 76). It addresses
a couple of bugs in MINNINEC identified by Brian
Beezley K6STI (Author of MN, YO, and AO).

Ray Anderson WB6TPU
raymonda@uranium.ebay.sun.com

---------------start of included text -----------------

MININEC BUGS:
K6STI PLAYS EXTERMINATOR

  I recently discovered two bugs in the
MININEC antenna-analysis program. The
most serious bug yields incorrect patterns
for antenna models with grounded wires.
The error overstates gain at low elevation
angles by as much as several decibels. The
problem occurs only for models with wires
connected to imperfect ground. The bug
does not affect models using perfect ground
or models with ungrounded wires.
    The error decreases as you add segments
to grounded wires. Therefore, if you habi-
tually test algorithm convergence by
creasing segmentation density until results
no longer change significantly, the prob-
lem won't affect your results. However, I
doubt that most users check convergence
for simple models. Since the bug affects
models regardless of complexity, I believe
that the error often goes unnoticed.
    You can check any MININEC-based
program for this bug by modeling a quar-
ter-wave monopole over imperfect ground
and observing the response at zero degrees
elevation. There should be no response at
the horizon because direct radiation is can-
celed by that reflected from ground. Un-
corrected MININEC will show a significant
response unless you use an unusually high
number of segments. In contrast, the cor-
rected algorithm has no response regard-
less of segmentation.
    If you compile your own MINNINEC
 code, you can fix this bug by deleting lines
 716, 717 and 733. After the change, lines
 741 through 744 are no longer used and can

be deleted as well. The original code erro-
neously uses perfect ground when calculat-
ing the field from pulses connected to
imperfect ground. Perfect ground rein-
forces rather than cancels radiation near the
horizon, so the grounded contribution cor-
rupts the field summation calculated cor-
rectly for other pulses.
    The second MININEC bug occurs only
for sloping, grounded wires in the X=-Y
plane. Since this geometry isn't common,
you may never encounter the problem. The
bug causes completely erroneous results
that can be corrected only by moving the
wires out of the plane. The error involves
overzealous removal of redundant calcula-
tions. You can fix this bug by correcting
two lines as follows:
239 IF CA(I1)=O AND CB(I1)=O THEN 241
242 IF CA(J1)=O AND CB(J1)=O THEN 244

 --Brian Beezley, K6STI, 507 1/2 Taylor St.
 Vista, CA 92084
--------------------end of included text-------------------

Date: Mon, 14 Feb 1994 19:55:50 GMT
From: ucsnews!newshub.sdsu.edu!usc!yeshua.marcam.com!zip.eecs.umich.edu!umn.edu!
uum1!ncrtimes!tblake.stpaul.ncr.com!tony.blake@network.ucsd.edu
Subject: Difference between Cushcraft A147-20T & A144-20T
To: ham-ant@ucsd.edu

Hi Gang,

I am making some final decisions on what VHF equipment to
purchase. My long range plan is to work the satellites,
but for now be content with terrestrial work.   For now,
I want to run the Cushcraft A147-20T. However, while looking
over Cushcraft's AOP-1 OSCAR system, I noticed that one of
the 2m antennas is their A144-20T. This antenna appears to
be identical to the A147-20T.

Does anyone know what the difference is between these two
antennas? Will I be able to use the A147-20T for OSCAR work
in the future?

Thanks,

===

Tony Blake DoD#9045   AT&T Global Information Solutions
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(612) 638-7259 voice   2700 Snelling Avenue North
(612) 638-8173 fax   St Paul, MN 55113-1784

Disclaimer: The smelling pistakes are all my own.
===

Date: 15 Feb 1994 07:50:58 GMT
From: ucsnews!newshub.sdsu.edu!usc!howland.reston.ans.net!europa.eng.gtefsd.com!
mozart.amil.jhu.edu!blaze.cs.jhu.edu!vincie@network.ucsd.edu
Subject: Increasing antenna sensativity?
To: ham-ant@ucsd.edu

I don't know if this is the most appropriate newsgroup. (It's the closest
one except for sci.electronics.)

I'm mainly interesting in received AM broadcasts. (I haven't had a
chance to start my interest in amateur radio.) I need to
construct a better antenna. Most receivers have that cheap multi-loop
antenna. Im' just curious if that is the best design for AM reception?
Would multi-segmented wires be better? How about more loops and larger
loops?

Thanks...

Michael

Date: Wed, 16 Feb 94 06:52:21 GMT
From: amd!netcomsv!skyld!jangus@decwrl.dec.com
Subject: mininec3
To: ham-ant@ucsd.edu

 I found it! And it works. And yes, cryptic is one way to describe it.

 It is on ftp.funet.fi in the directory /pub/dx/software/msdos/antenna

 Heh, share and enjoy!

```
  Amateur: WA6FWI@WA6FWI.#SOCA.CA.USA.NA  |  "You have a flair for adding
 Internet: jangus@skyld.grendel.com       |   a fanciful dimension to any
  US Mail: PO Box 4425 Carson, CA 90749   |   story."
    Phone: 1 (310) 324-6080               |            Peking Noodle Co.
```

Date: Wed, 16 Feb 1994 13:56:24 GMT
From: agate!howland.reston.ans.net!gatech!wa4mei.ping.com!ke4zv!
gary@network.ucsd.edu
Subject: Radiation efficiency questions ...
To: ham-ant@ucsd.edu

In article <CLA7ts.Muq@freenet.carleton.ca> ae517@FreeNet.Carleton.CA (Russ
Renaud) writes:
>In a previous article, tavernin@sun1.interlan.com (Victor Tavernini) says:
>>I have a couple of questions about radiation efficiency ...
>>1. What is the radiation efficiency (compared to a 10 meter dipole) of
>>a 15 meter dipole used at 10 meters with an antenna tuner!?
>>2. What is the radiation efficiency (compared to a 40 meter dipole) of
>>a 15 meter dipole used at 40 meters with an antenna tuner!?
>
>Radiation efficiency has very little to do with resonance.

True. A non-resonant antenna is just more difficult to drive efficently.

>In both cases, as long as associated losses remain the same, the radiation
>efficiency should be equal.

Not true I think. To generate the same field, the shorter antenna will
require a higher potential across it, and higher current flowing through
it. So the shorter antenna will have increased I^2R losses given the same
wire size.

Gary
--
```
Gary Coffman KE4ZV          |    You make it,     | gatech!wa4mei!ke4zv!gary
Destructive Testing Systems |    we break it.     | uunet!rsiatl!ke4zv!gary
534 Shannon Way             |    Guaranteed!      | emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244     |                     |
```

Date: 15 Feb 94 15:28:12 GMT
From: yuma!galen@purdue.edu

Subject: rotator ???
To: ham-ant@ucsd.edu

In article <QhLyo0y00YUoApKUE4@andrew.cmu.edu> Chris Beasley
<cb1p+@andrew.cmu.edu> writes:
>Hey folks, looks like it's time to consult the net.wisdom on this one.
>I have an old (circa 1960) Channelmaster antenna rotator and a page
>of documetation that includes the rotator and the controller. From
>the schematic, it appears that the rotator and controller are just a
>pair of 90degree windings at about 8 ohms each that are connected
>together to form a synchro pair?

Much deleted.

>Thanx in advance and 73!
>Chris
>N3PDG

I think what you have are called SELSYNS. I have a c1951 Air Force Radar
manual that describes them in some detail.
Manual states they are also called SYNCHRO, AUTOSYN, and SYNCHROTIE.
Try looking in some OLD radar/radio books.
My book is titled 'Radar Circuit Analysis, AF Manual 52-8'.
Galen, KF0YJ

Date: Mon, 14 Feb 1994 16:28:32 -0500
From: elroy.jpl.nasa.gov!swrinde!cs.utexas.edu!math.ohio-state.edu!cis.ohio-
state.edu!news.sei.cmu.edu!bb3.andrew.cmu.edu!andrew.cmu.edu!cb1p+@ames.arpa
Subject: rotator ???
To: ham-ant@ucsd.edu

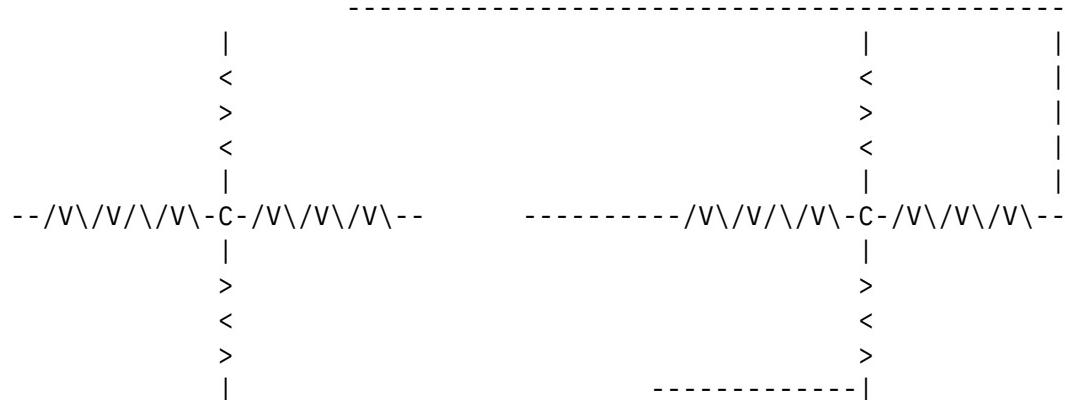Hey folks, looks like it's time to consult the net.wisdom on this one.

I have an old (circa 1960) Channelmaster antenna rotator and a page
of documetation that includes the rotator and the controller. From
the schematic, it appears that the rotator and controller are just a
pair of 90degree windings at about 8 ohms each that are connected
together to form a synchro pair?

The only difference between the rotator and the controller is that
there is another xformer in the controller hooked up to line AC on one
side and with two secondaries hooked up to the "control windings?" in
the controller.

I guess I could try to imitate some lame ascii graphics or something
:-/

```
Rotator Controller                          Rotator


                    ---------------------------------------------
          |                                   |         |
          <                                   <         |
          >                                   >         |
          <                                   <         |
          |                                   |         |
--/V\/V/\/V\-C-/V\/V\/V\--     ----------/V\/V/\/V\-C-/V\/V\/V\--
          |                                   |
          >                                   >
          <                                   <
          >                                   >
          |                   ------------|
```

Whew, that's a bitch! I am not gonna get the whole schem. this way.
how about if I just elaborate verbally....

The rotator on the right appears to have four windings connected
into two that are not connected in the center, thus forming two
90 degree windings. The two ends are commoned to produce the line I
call "common" going back to the controller. The other two lines going
back to the controller are the two winding power lines.

There is something in the controller that is the same that I am
calling the control transformer for lack of a better term. There is
also a transformer hooked up to 120VAC with two secondaries, a switch
(probably for direction sense) and a capacitor.

If this is all still too confusing I can try to enter more of the
schems.

What I am wonderign is, how to control this rotator. Eventually I
would like to hook up to my computer but for now I would be happy to
have a box with compass points and a dial on it. I have one of those
actually but it seems to be the wrong kind. It has four wires to
connect to for one thing and has a solenoid that I think is supposed
to move a compass needle when pulses come back from the rotator. It
doesn't work with my rotator any way I have tried to hook it up.

Can anybody help me with this? Tell me what kind of rotator I have
and what kind of controller I need? Where to get one? Any additional
info will be appreciated!

Thanx in advance and 73!
Chris
N3PDG

Date: Mon, 14 Feb 94 19:43:37 GMT
From: news.crd.ge.com!sarah!eve!gl8574@cs.rochester.edu
Subject: Sterba Curtain
To: ham-ant@ucsd.edu

While this does not answer the question in particular, I have one of my own
regarding this beast. Has anybody out there attempted to build one of these from
a material other than wire (copper pipe, for example)? I had been toying with the
idea of building one from 1/2 inch copper pipe. Naturally, you wouldn't want to
try this on anything much below 2m without some serious structural support....

Now a possible anser to the question-- is it possible to get some heavy steel
cable, like one might use for a light tow cable, in a copperweld? The only
problem I could see with using a design like that would be on the two inner
verticals, where the thing might short out.... Just an idea.

--
--
gl8574@cs.albany.edu
"Not a jock or a geek, not a nerd or a greek, not quite normal, not really a
 friek, just me.... Deal with it!"   -Critter

Date: Wed, 16 Feb 1994 14:52:00 GMT
From: utcsri!newsflash.concordia.ca!pavo.concordia.ca!md_hill@uunet.uu.net
Subject: Torroid Cores
To: ham-ant@ucsd.edu

I was digging through my junk (read "treasure trove of electronic stuff") the
other day when I came across a bag full of torroid cores. I often read articles
requiring a certain company's core #123XYZ. Question is: how do you know if
the core that you happen to have on hand is usable ?. Is there a catalog
somewhere that cross-references various manufactures numbers ?. Example: I have
two cores in front of me; one is 1 9/16" (40mm) O.D. and 15/16" (24 mm) I.D.
and bears the number A-254168-2. I think this is an Amidon core. The other is
1 7/16" (36mm) O.D. and 7/8" (23mm) I.D. with the number K300501 (B6A). Do
these numbers mean anything to anyone ?
Thanks
-Mark Hillier Internet: MD_HILL@pavo.concordia.ca
    Amateur: VE2HVW

```
   PACKET:   VE2HVW@VE2FKB
" I hear, I forget. I see, I remember. I do, I understand"
-Mark
Message-ID: <16FEB199409520503@pavo.concordia.ca>
Organization: Concordia University
News-Software: VAX/VMS VNEWS 1.41


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End of Ham-Ant Digest V94 #36
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